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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT PAPER NUMBER

1732

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,915

Applicant(s)

NIEMAN ET AL.

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Applicant's amendments to the specification, title, and claims, filed June 6, 2006, have been accepted. Applicant's amendment to claim 10, filed June 6, 2006, overcomes the 35 U.S.C. 112, second paragraph rejection. The rejection is withdrawn. Original claims 1-8 and 11-15, amended claims 9 and 10, and new claim 16 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Colone et al. (U.S. Patent 6,187,054; priority date February 4, 1999).

Regarding claim 1, Colone et al. teach a method of producing an expanded polytetrafluoroethylene (ePTFE) structure comprising the steps of providing an ePTFE tube (col. 4, lines 1-10), radially expanding the tube on a hot mandrel (col. 4, lines 13-21), calendering the radially expanded tube while maintaining its expanded second inner diameter (col. 5, lines 3-6), and heating the calendered tube at about 360 °C while

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still disposed on the mandrel, ensuring the second inner diameter is substantially maintained constant (col. 5, line 65 – col. 6, line 2) to form a high density microwall ePTFE structure. The crystalline melting-point of polytetrafluoroethylene is noted to be about 327 °C.

Regarding claim 9, Colone et al. teach that tubes produced in an extruder (Abstract) with a variety of diameters can be made (col. 1, lines 26-29) and that depending on the final product, tubes of other diameters, and thicknesses may be made by the same process (col. 4, lines 8-10). Colone et al. further teach an iterative process until the desired diameter of the tube is achieved. Therefore, if the starting diameter of the tube were the desired final diameter it is clearly within the teaching and scope of Colone et al. that radially expanding the tube further would not be necessary and that the calendering would still be performed to provide strength (col. 2, lines 38-40) and heating the calendered tube above its crystalline melting point would still be performed to provide the final geometric shape of the ePTFE structure (col. 5, line 65 – col. 6, line 2).

As to claim 2, Colone et al. exemplify an initial ePTFE tube with a nominal diameter of 6 mm (col. 4, lines 6-7) that is radially expanded to 25 mm (col. 5, lines 33-36) and further teach that the tubes can be expanded radially up to a factor of ten (col. 5, lines 36-38).

As to claims 3 and 10, the method taught by Colone et al. requires a mandrel whose surface is not perfectly smooth, but instead has been scored or scratched (col. 4,

lines 33-38). This surface treatment would result in different densities in adjacent sections of the tube.

As to claims 4 and 11, Colone et al. teach that different inner diameters can be produced along the length, for example by forming the structure in the shape of a cone (col. 8, lines 13-16).

As to claims 5 and 12, Colone et al. exemplify the use of a lubricant in the production of the tube (col. 1, lines 38-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colone et al. (U.S. Patent 6,187,054; filed February 4, 1999; issued February 13, 2001), as applied to claims 1-5 and 9-12 above, in view of Moret de Rocheprise (U.S. Patent Number 5,207,960; issued May 4, 1993).

Regarding claims 6 and 13, Colone et al. teach the method of claims 1 and 9 as discussed in the 102(e) rejection above. Further, the method of calendering taught by Colone et al. includes positioning the radially expanded ePTFE tube on a cylindrical mandrel, placing it on a hard smooth surface while providing a downward force and rolling the radially expanded tube in a reciprocal fashion perpendicularly to the central axis of the loaded mandrel. Colone et al. further teach that this could be performed by hand or with a machine (col. 5, lines 3-21). Colone et al. do not expressly teach that the downward force is applied by a first metallic plate being held stationary under a constant load and that a second metallic plate is reciprocated along a direction perpendicular to the axis of the loaded mandrel.

However, Moret de Roceprise teaches a method of rolling a PTFE tube where he positions the tube over a cylindrical mandrel and places the loaded mandrel between wheels positioned at equally spaced surfaces (Figure 1). These wheels are rotated and apply mechanical force on the tube along a direction perpendicular to the central axis of the loaded mandrel.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to combine the teaching of Moret de Roceprise of rolling a PTFE tube with the teaching of Colone et al. for producing an

expanded PTFE structure for the purpose of increasing the productivity of the manual/hand calendering method exemplified by Colone et al. Additionally, Colone et al. teach the manual/hand calendering process may be automated and performed by a machine which generates a press nip (col. 5, lines 18-22). Adding an additional metallic plate to the single plate disclosed by Colone et al. for generating the press nip would have been obvious to the ordinarily skilled artisan.

As to claims 7, 8, 14, and 15, providing a sheet of material/buffer layer between calendering surfaces and the surface of the material being calendered is routinely practiced in the art. These materials are provided to prevent adhesion to the calendering surface, to increase the life of the calendering equipment, and to soften the contact between the calendering surface and the surface of the material being calendered so that generic equipment is easily adapted for various material applications and so that the calendered surface is not damaged during the process. As such, it would have been obvious to one of ordinary skill to place a sheet of material/buffer layer between the calendering surfaces and the tube for the reasons described above, as is routinely practice in the art.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colone et al. (U.S. Patent 6,187,054; filed February 4, 1999; issued February 13, 2001), as applied to claims 1-5 and 9-12 above, and further in view of Herweck et al. (U.S. Patent Application 2002/0183716; priority date January 25, 1999) or Egres, Jr. (U.S. Patent 6,016,848; issued January 25, 2000).

As to claim 16, Colone et al. teach the method of claim 1 as discussed in the 102(e) rejection above. They do not expressly teach the radial expansion step comprises positioning the ePTFE tube in a restraining tube set at a predetermined diameter.

However, Herweck et al. (paragraph [0018]) and Egres, Jr. (Figure 14; col. 11, lines 31-63) each individually teach analogous methods of radially expanding ePTFE/fluoropolymer tubes comprising positioning the ePTFE/fluoropolymer tube in a restraining tube/device set at a predetermined diameter.

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to modify the radial expansion technique taught by Colone et al. by performing the radial expansion in a restraining tube/device set at a predetermined diameter as taught individually by both Herweck et al. and Egres, Jr., for the purpose as taught by Herweck et al., of facilitating concentric radial expansion of the tube in a dependable and predictable manner (paragraph [0013, 0018]).

Response to Arguments

Applicant's arguments filed June 6, 2006 have been fully considered but they are not persuasive.

The arguments appear to be on the following grounds:

1. The tube, as taught by Colone et al., contracts during the process of heating the calendered tube and as such the requirement of claims 1 and 9 that the final inner diameter is maintained "substantially constant" is not met.

2. The Moret de Rocheprise reference does not show or describe the missing step of "heating said calendered tube above the crystalline melt-point for polytetrafluoroethylene while maintaining said second inner diameter substantially constant" (claim 1) and "heating said calendered tube above the crystalline melt-point for polytetrafluoroethylene while maintaining said first inner diameter substantially constant".

The arguments are not persuasive for the following reasons:

1. The tube, as taught by Colone et al., is disposed on a mandrel for the step of heating the tube above its crystalline melt-point (see Figure 7C; col. 5, lines 61-67). Colone et al. do state, "heating causes the tubes to soften, radially contract, and to lightly adhere to each other, and to mandrel 40" (col. 5, lines 63-64). However, this is no different than what takes place in practicing the pending claims (U.S. Patent Application Publication 2004/0164445, paragraph [0021]). The tube disposed upon the mandrel, as taught by Colone et al. and applicant, grips the mandrel while it is heated. The diameter is clearly maintained "substantially constant" in both instances.

2. As described in the examiner's response above, regarding claims 1 and 9, there are no missing elements in the Colone et al. reference. As such, the reference anticipates claims 1 and 9. The examiner does not rely upon the Moret de Rocheprise reference to provide missing process limitations for claims 1 and 9.

Conclusion

All claims are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager
Examiner
Art Unit 1732

August 4, 2006


CHRISTINA JOHNSON
PRIMARY EXAMINER

8/4/06